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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
IBRAHIM, MEDINA AHMED	
ART UNIT	**PAPER NUMBER**
1638	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/800,200	BREDDAM ET AL.	
	Examiner	Art Unit	
	Medina A. Ibrahim	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 50-74* is/are pending in the application.

4a) Of the above claim(s) *60-74* is/are withdrawn from consideration.

5)☒ Claim(s) *1,51,52 and 57-59* is/are allowed.

6)☒ Claim(s) *53-56* is/are rejected.

7)☒ Claim(s) *50* is/are objected to.

8)☒ Claim(s) *60-74* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant's response filed 09/28/07 and the supplemental responses of 10/15/07 and 10/19/07 have been entered. The IDS of 10/19/07 has been considered.

Claim 1 has been amended. Claims 2-49 are cancelled. Claims 50-74 have been added. Therefore, claims 1 and 50-74 are pending.

Election/Restrictions

Newly submitted claims 60-61 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the claims are directed to a method of selecting mutant barley by breeding mutagenized barley plants, classified as class/subclass 800/260, for example. Therefore, there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 60-61 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Upon further consideration, it has been determined that withdrawn claims 62-74 will be rejoined with claim 1, upon allowance of claim 1.

Claims 1 and 50-59 are examined.

Claims 60-74 are withdrawn from consideration as being directed to the non-elected invention.

All previous objections and rejections not set forth below have been withdrawn in view of Applicant's amendment to the claims and/or arguments.

Claim Objections

2. Claim 50 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 is directed to a barley plant comprising a mutated Lox-1 protein lacking all or a portion of amino acids 520 to 862 of SEQ ID NO: 3 or SEQ ID NO: 7. Claim 50 is drawn to the barley plant of claim 1 comprising a mutated Lox-1 with truncations at or between amino acids 378 and 665. Claim 50 is broader than claim 1 because amino acids on or between 378 and 665 includes a deleted portion, i.e. the amino acids 520 to 862 of claim 1. Therefore, the plant of claim 50 is broader in scope than the plant of claim 1.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 53-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 53-55 are indefinite because SEQ ID NO: 2 or 6 cannot encode a protein that lacks all or a portion of amino acids 520-862 of SEQ ID NO: 3 or 7. SEQ ID NO: 2

or 6, is a sequence with 4165 nucleotides. Clarification is required to more clearly define the metes and bounds of the claims.

6.

Claim Rejections - 35 USC § 103/102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 56 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Douma et al (WO 02/053721).

Claim 56 is directed to a progeny of any generation of the null lox-1 barley plant deposited as indicated in the claim.

Douma et al teach barley cultivars having greatly reduced lipoxygenase-1 activity (figure 16). The barley plants contain a mutant lox-1 gene expressing greatly reduced levels of the isoenzyme lipoxygenase-1 for the production of flavor-stable beverage.

Douma et al provide an enabling disclosure and sufficient guidance for how to produce barley mutants with severely reduced LOX-1 activity.

Figure 13 of the Douma et al shows the lox-1 gene of cultivar Vintage (wild-type) and the mutant lox-1 gene of Line G. Two mutations in the lox-1 gene are indicated. Figure 16 shows sequence alignment between the wild-type and mutant lox-1 gene is due to a point mutation at nucleotide 2347. Douma et al also teach that known genetic approaches chemical and radiation induced mutagenesis, and site-directed mutagenesis can be used to produce the plants with greatly reduced level of lipoxygenase 1 in a barley plant in a stable and inheritable manner. A cross between plant of the null lox-1 barley plant that is deposited and any second barley by several generation will result in a progeny barley plant with wide range of phenotypic characteristics, and it appears that the prior art corn plant falls within this range. Examiner cannot determine whether the prior art plant possesses the unrecited features. The Examiner does not have sufficient facts to determine whether the corn plant and seeds are inherently the same. In addition, the Examiner cannot conclude that the claimed subject matter would have been obvious since it cannot be determined whether the corn plants differ. See *In re Thorpe,* 227 USPQ 964, 966 (Fed. Cir. 1985).

Applicant argues that the cited reference identifies no single null lox-1 barley plant after screening as many as 20,000 mutagenized barley plants. Applicant, therefore, asserts that it is unlikely that a null-LOX-1 barley plant can be identified by the methods described by the reference.

These are not found persuasive because Applicants' arguments do not provide clear and convincing evidence that the prior art would neither anticipate nor render obvious the claimed invention. Therefore, the rejection is proper.

Remarks

Claims 1, 51-52, and 57-59 are allowed.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Medina A. Ibrahim whose telephone number is (571) 272-0797. The Examiner can normally be reached Monday -Thursday from 8:00AM to 5:30PM and every other Friday from 9:00AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

1/3/08
Mai

MEDINA A. IBRAHIM
PRIMARY EXAMINER